

REMARKS

Claims 1-9 are pending. The drawings, specification and claims are amended. New claim 9 is added.

The Examiner has requested that Fig. 9 be designated as --Prior Art--. Accordingly, a replacement sheet of drawings is submitted herewith which has been amended as requested by the Examiner.

The specification was objected to as allegedly failing to provide proper antecedent basis. Page 12 of the specification has been amended in response to the objection. Favorable reconsideration is requested.

Claims 1-8 were objected to and were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claim 1 has been amended in response to the objection and rejection. It is respectfully submitted that the amended claims are in full compliance with 35 U.S.C. §112. Favorable reconsideration is earnestly solicited.

Claims 1-4 and 8 were rejected under 35 USC § 103(a) as being unpatentable over Kawamura et al. in view of British Thomson Huston (BTH). Favorable reconsideration is earnestly solicited.

The Examiner acknowledges that Kawamura et al. fails to disclose the pair of facing teeth surfaces being in contact with each other only at a pitch line. The Examiner applies (BTH) as showing a pair of facing teeth surfaces being in contact with each other only at a pitch line (Figs. 5 and 6). The Examiner argues that it would have been obvious to combine the references "since the use thereof would have improved the performance the efficiency of the pump device."

Fig. 4 of Kawamura, et al. illustrates an axial tooth profile. This profile corresponds to that shown in Fig. 9 of the present application which is designated as Prior Art. As can be seen from Fig. 9, each of the taper surfaces T comprises a straight line. Therefore, if the screw rotors 2a and 2b are brought into contact with one another, these taper surfaces T come into line contact with one another, rather than a point contact. Such line contact between the teeth cannot allow the screw rotors to rotate because of friction generated between the screw rotors. As a result, the screw rotors of this type should be kept out of contact at all times. Kawamura, et al. clearly states on column 6, lines 4-7, that the screw rotors are held out of contact with each other.

In contrast, the screw rotors according to the present invention can be positively in contact with one another. As a result, a clearance between surfaces at the opposite sides of the taper surfaces, i.e., trochoid surfaces, can be easily maintained.

The BTH reference discloses both side surfaces of a tooth being in contact with the neighboring tooth. This structure requires strict maintenance of the tooth profile when assembling two rotors. Accordingly, a combination of the cited references would not teach or suggest the claimed invention.

Claims 5 and 6 were rejected under 35 USC § 103(a) as being unpatentable over Kawamura et al. in view of BTH further in view of Yanagisawa et al. Yanagisawa et al. is cited for its disclosure of a pair of magnet rotors.

Claim 7 was rejected under 35 USC § 103(a) as being unpatentable over Kawamura et al. in view of BTH further in view of Yanagisawa. The Examiner applies Yanagisawa for its disclosure of plural pairs of magnetic rotors.

It is respectfully submitted that each of these rejections is overcome for the reasons discussed above. Furthermore, the secondary references fail to provide the teachings which Kawamura, et al. and BTH lack.

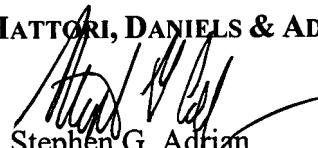
For at the foregoing reasons, the claimed invention distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action by Applicants would be desirable to place the application in better condition for allowance, the Examiner is encouraged to telephone Applicants' undersigned attorney

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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